United States Department Of Agriculture | Forest Service | Shasta-Trinity National Forests

Reply To: 3420 Lat 40.84817 Lon -122.85948 Date: October 30, 1989

Subject: Biological Evaluation of Dwarf Mistletoe in Stoney Point Campground, Weaverville RD (Rept. No. N89-22)

To: Forest Supervisor, Shasta-Trinity NF

On September 26, 1989, Dave Schultz, entomologist, and I met with Marla Schardin, Weaverville Ranger District, to evaluate pest conditions in Stoney Point Campground. This campground is on the Stuart Fork arm of Clair Engle Lake.

There are 2 aggregations of vegetation in Stoney Point. At the north end, the stand is 2-3 layered, with Jeffrey pine and incense-cedar in the overstory. The understory includes these species and a few Douglas-fir and sugar pine. Manzanita, rabbit brush, buck brush, Yerba Santa, and grasses comprise most of the ground cover. The stand is relatively open. Soils appear shallow and are of serpentine origin. Most of the Jeffrey pine in the overstory are infected by western dwarf mistletoe (Arceuthobium campylopodum). Overall, the infection level is moderate with witches' brooms well-developed. Infections of the understory Jeffrey pine are occurring with deformations and stunting of trees.

The south end of the campground has a denser, more mixed species stand, with a single layer canopy structure. Douglas-fir and sugar pine make up a larger component, with black oak also in the stand. There is little regeneration or ground cover in this part of the campground. Although dwarf mistletoe is present in some of the Jeffrey pines, infection levels are generally low and witches' brooms are not common.

Some treatments are available to reduce impacts of dwarf mistletoe in the campground and are discussed below. However, to attain and preserve desirable vegetation characteristics in the campground, a long-term vegetation management plan should be developed. This plan would establish the desired vegetation characteristics and describe the needed actions to achieve these goals. This would include actions to reduce the impacts of pests, including forest diseases and insects. Without actions to regenerate parts of the campground and reduce stocking levels in other parts, the future campground may suffer high levels of tree mortality and develop sizeable openings.

MANAGEMENT ALTERNATIVES

The following management alternatives are designed to address the dwarf mistletoe situation for the short-term. Pest management input for long-term management requires a more detailed evaluation which we are available to perform at your request.

1. No Action. Heavily infected pines in the north end of the campground will periodically be attacked and killed by bark beetles. Because of the stress induced by the dwarf mistletoe, these trees will be more susceptible to successful beetle activity. During droughts this susceptibility will increase. Less heavily infected pines within about 20 feet of attacked trees may also be attacked because of the attractant nature of the pheromones produced.

As long as infected overstory trees are present, pine regeneration in the area will be infected from above. This will result in infections throughout their crowns, limiting their growth capability and resulting in some stem deformations. These smaller trees will not produce desirable larger trees to replace the overstory that will slowly be lost.

The few sugar pine and Douglas-fir on this site should not be expected to become replacement trees. They are growing under marginal conditions on this site. The sugar pines will likely become infected by white pine blister rust (caused by Cronartium ribicola) and die before becoming sizeable.

This end of the campground will continue to slowly convert to brush. The few trees that do persist will develop significant witches' brooms and become stunted and deformed.

Trees in the south end of the campground will fare better because of the mixed species present and the better growing site. However, the dense stocking may result in some mortality. The few dwarf mistletoe infected pines may be attacked by bark beetles. The other tree species may also be attacked by cambium feeding insects because of the dense stocking and resultant stress. As long as the canopy remains closed, any regeneration will do poorly.

2. Witches' Broom Pruning. The objective of this alternative is to prolong the lives of individual Jeffrey pines by removing the dwarf mistletoe witches' brooms. Studies have found that witches' brooms cause a major impact on tree vigor and their removal can reduce the stress of infection. Treatments can prolong tree life at least 10 to 15 years. This is an individual tree treatment and certain guidelines have been developed for implementation.

a. Only witches' brooms are removed. Other branches may be removed that interfere with broom removal, but little benefit is gained from trying to remove non-broomed, infected branches. Prune brooms at the bole.

b. No more than 50% of the live crown should be removed. If more than this would be removed, then the tree should not be treated.

c. At least 30% live crown should be retained. Trees with less than 30% live crown following pruning often die.

Regeneration attempts following broom pruning still need to be directed to non-hosts because of the presence of overstory infections. This may be difficult on this site because of its serpentine nature and the limited number of species that will grow on the site; however, some apparently dwarf mistletoe resistant Jeffrey pine seed may be available from PSW if the District is interested.

3. Tree Removal. Heavily infected pines may be removed to meet 2 objectives. In denser aggregations, their removal would reduce intertree competition and benefit the leave trees. Secondly, removing these trees would reduce the likelihood of the development of bark beetle pockets involving these heavily infected trees and nearby less infected trees. Removing heavily infected pines would also reduce the amount of dwarf mistletoe seed produced and may slow the intensification of this pathogen in some understory trees.

Funds for the suppression of dwarf mistletoe as described in 2 and 3 above are available from Forest Pest Management when other funds do not exist. Only infected trees can be treated. An environmental assessment, FPM project proposal (Form FS-3400-2), and economic evaluation are required to apply for these funds. We are available to provide assistance to pursue this source of funding at your request.

If there are any questions about this evaluation or you require further assistance, please contact Dave Schultz (916-246-5087) or myself (916-246-5101) in the S.O.

Gregg DeNitto

GREGG A. DeNITTO
Northern CA FPM Service Area